

INFANTILE MORTALITY IN GIBRALTAR.
A Review of its Causes with Suggestions for
its Further Reduction.

A THESIS
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INTRODUCTION.

It is proposed in this thesis to review the causes of infantile mortality in Gibraltar during the years 1915-39, and to discuss and suggest measures for its reduction. Before proceeding to such a review and discussion, however, certain conditions - topographical, climatic, ethnological, social, medical and administrative - must be outlined, since a knowledge of these factors is essential as they are peculiar to the Colony.

PART I.TOPOGRAPHY.

Gibraltar is a narrow peninsula running North and South. It consists of a rocky promontory 1396 ft. high and a flat area, about $\frac{1}{2}$ mile long by about $\frac{3}{4}$ mile wide, situated on the North side of the Rock and through which runs the main road to Spain. From the Frontier to the Spanish City of La Linea de la Concepcion the distance is only about a mile.

The total area of Gibraltar is about $2\frac{1}{4}$ square miles. The area of the city itself is only 105 acres.

Within recent years some land on the Western side of the Rock has been reclaimed from the sea, but this has not benefited the civilian population to any extent, as it has been used chiefly for Naval, Military and Air Force requirements. The town of Gibraltar is built mainly on the North-Western slope of the Rock and consequently it is hilly. Many streets are made up of steps instead of the usual smooth street surface. The South-Western side is also built up, but not to the same intensive degree. A map of Gibraltar is shown in Fig. 1.

CLIMATOLOGY. /

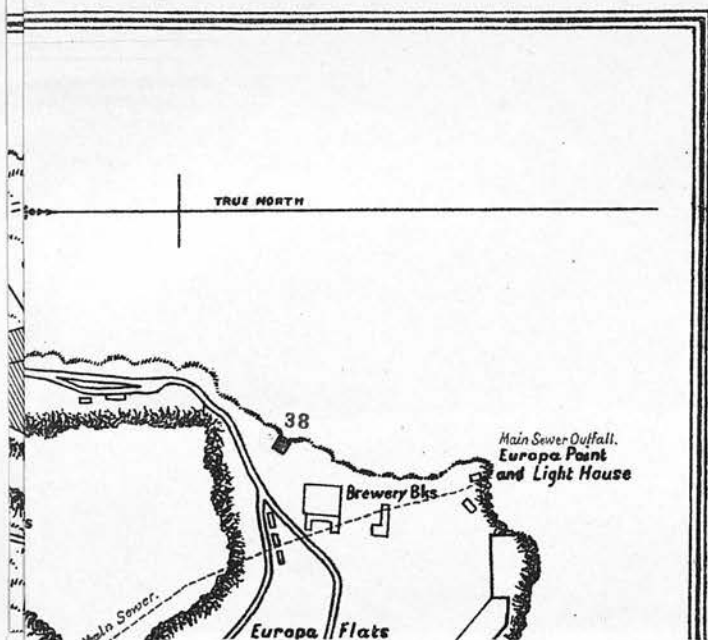
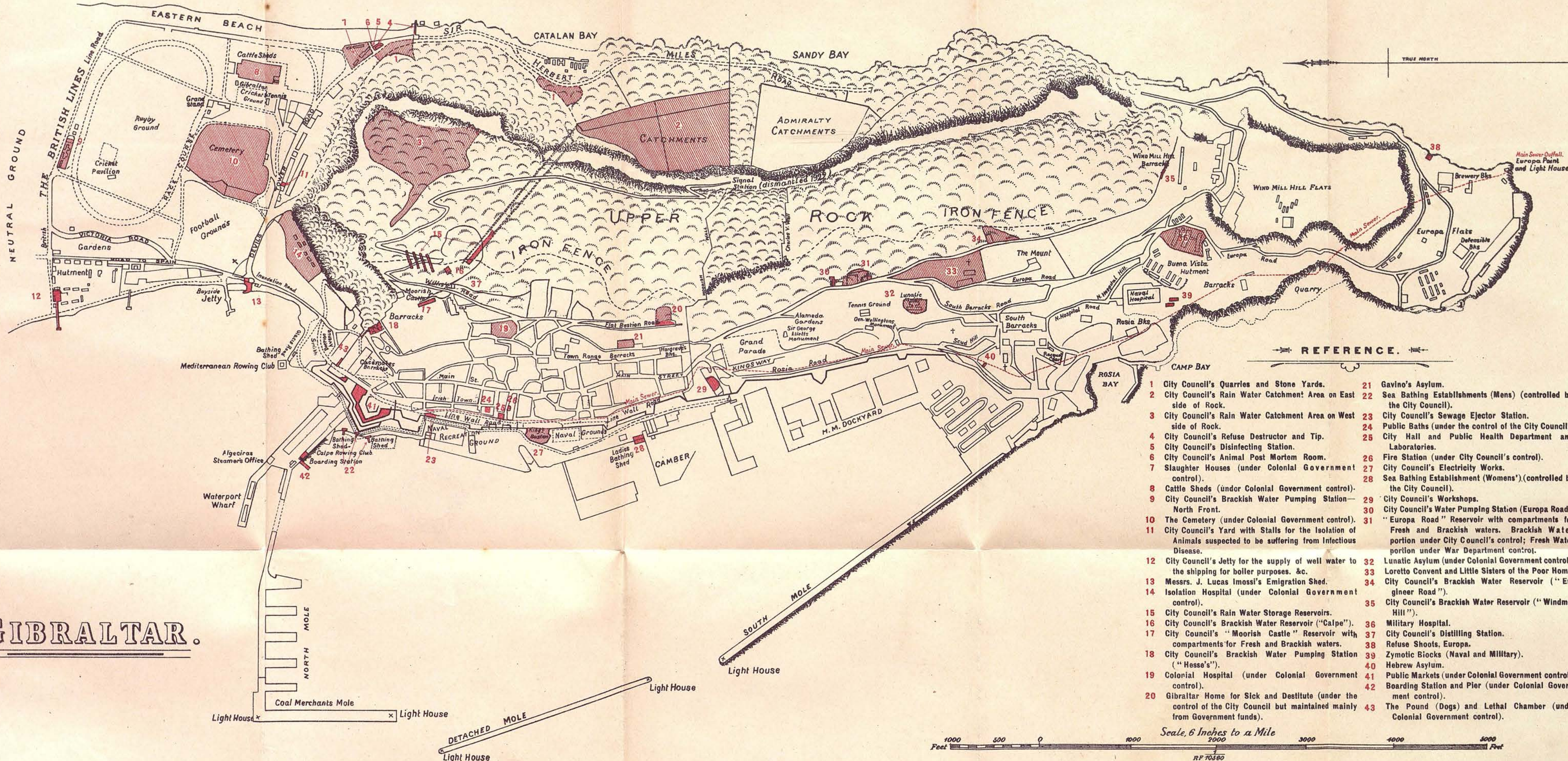


Fig. 1. Map of Gibraltar.

GIBRALTAR.



REFERENCE.

- | | |
|---|--|
| 1 City Council's Quarries and Stone Yards. | 21 Gavino's Asylum. |
| 2 City Council's Rain Water Catchment Area on East side of Rock. | 22 Sea Bathing Establishments (Mens) (controlled by the City Council). |
| 3 City Council's Rain Water Catchment Area on West side of Rock. | 23 City Council's Sewage Ejector Station. |
| 4 City Council's Refuse Destructor and Tip. | 24 Public Baths (under the control of the City Council). |
| 5 City Council's Disinfecting Station. | 25 City Hall and Public Health Department and Laboratories. |
| 6 City Council's Animal Post Mortem Room. | 26 Fire Station (under City Council's control). |
| 7 Slaughter Houses (under Colonial Government control). | 27 City Council's Electricity Works. |
| 8 Cattle Sheds (under Colonial Government control). | 28 Sea Bathing Establishment (Womens') (controlled by the City Council). |
| 9 City Council's Brackish Water Pumping Station—North Front. | 29 City Council's Workshops. |
| 10 The Cemetery (under Colonial Government control). | 30 City Council's Water Pumping Station (Europa Road). |
| 11 City Council's Yard with Stalls for the isolation of Animals suspected to be suffering from Infectious Disease. | 31 "Europa Road" Reservoir with compartments for Fresh and Brackish waters. Brackish Water portion under City Council's control; Fresh Water portion under War Department control. |
| 12 City Council's Jetty for the supply of well water to the shipping for boiler purposes, &c. | 32 Lunatic Asylum (under Colonial Government control). |
| 13 Messrs. J. Lucas Imossi's Emigration Shed. | 33 Loretto Convent and Little Sisters of the Poor Home. |
| 14 Isolation Hospital (under Colonial Government control). | 34 City Council's Brackish Water Reservoir ("Engineer Road"). |
| 15 City Council's Rain Water Storage Reservoirs. | 35 City Council's Brackish Water Reservoir ("Windmill Hill"). |
| 16 City Council's Brackish Water Reservoir ("Calpe"). | 36 Military Hospital. |
| 17 City Council's "Moorish Castle" Reservoir with compartments for Fresh and Brackish waters. | 37 City Council's Distilling Station. |
| 18 City Council's Brackish Water Pumping Station ("Hesse's"). | 38 Refuse Shoots, Europa. |
| 19 Colonial Hospital (under Colonial Government control). | 39 Zymotic Blocks (Naval and Military). |
| 20 Gibraltar Home for Sick and Destitute (under the control of the City Council but maintained mainly from Government funds). | 40 Hebrew Asylum. |
| | 41 Public Markets (under Colonial Government control). |
| | 42 Boarding Station and Pier (under Colonial Government control). |
| | 43 The Pound (Dogs) and Lethal Chamber (under Colonial Government control). |

Scale, 6 Inches to a Mile



CLIMATOLOGY.

RAINFALL. The average rainfall for the year is about 36 inches. Most of this falls during the months October to April. Very little rain falls during **May**, June, July, August and September.

SUNSHINE. The daily mean hours of sunshine throughout an average year is 8.40, with a minimum of 5.34 hours in December and a maximum of 11.08 hours in May.

TEMPERATURE. The average mean temperature for the year is about 64.6°F with a maximum mean temperature of about 83.2°F . in July and a minimum mean temperature of about 48.7°F . in February.

HUMIDITY. The average relative humidity for the year, taken at the 7th, 13th and 21st hours, is 80%, 64% and 77% respectively. The highest relative humidity is usually found in January, December and March, whilst the lowest occurs in May, June, July and August. The maximum humidity is about 85% and the minimum 53%.

ATMOSPHERIC PRESSURE. The average barometric pressure (reduced to sea level and 32°F .) is 30.042 m.m.

PREVAILING WINDS. The prevailing winds are from the /

the East. West winds are also common.

SUMMARY. Gibraltar has a mild climate, free from extremes of temperature. The rainfall, which occurs chiefly in the Winter months, is concentrated into short periods and there is ample sunshine all the year round. Spring, Autumn and Winter are the more pleasant seasons in that order, whilst the Summer months are too hot and humid. The damp east winds, during this period, have a most enervating effect.

Detailed observations on the Meteorological conditions in Gibraltar are published in the Reports of the Air Ministry Meteorologist at Gibraltar.

ETHNOLOGY.

The total population of Gibraltar has not varied a great deal between the years 1921 and 1939. According to a census held in June 1921 the total population was 18,540 and a police estimate in 1939 gave the figure at 20,440. The difference is accounted for by the number of Spanish refugees and Gibraltar families who lived in Spain prior to the Spanish War of 1936 and who had continued to live in Gibraltar until the outbreak of the present World War. The /

The floating population is equal to and sometimes greater than the permanent population. From twelve to fifteen thousand Spaniards of both sexes come to work in the city every day and return to Spain at night. Passengers from ships calling at Gibraltar and visitors from Spanish and French Morocco all add to the large floating population.

The bulk of the civil population, originally Genoese, is now a very cosmopolitan one, resembling a miniature United States of America. The nationalities mainly represented in the present population are Italian, Spanish, Scottish, Irish, English and Welsh. There are a few Indians and Moors and about 800 Jews. There is practically no intermarriage with other races amongst the three last named.

The people are mainly bilingual, English and Spanish being the languages spoken. Customs and religions vary according to the characteristics of the various nationalities comprising the population, but Roman Catholics predominate by a large majority.

ADMINISTRATION /

ADMINISTRATION.

CIVIL. Gibraltar is a Crown Colony. Its civil administration is entrusted to a Military Governor in whom is vested the full legislative power as well as the full executive power. Even the judicial powers are exercised by a Chief Justice whose tenure of office is not, as in England, during good behaviour, but at the King's pleasure, and there are powers vested in the Governor to suspend or remove the Chief Justice.

The civil population have no say whatsoever in the appointment of their ruler and no right to vote either locally or in England. The government of Gibraltar is, therefore, purely and essentially dictatorial.

The Governor is of course under English common law bound by his instructions and responsible to the Secretary of State for the Colonies, who in turn is responsible to the English Parliament. But, the people over whom he rules have no political control whatsoever over their ruler. Such local political representation /

representation as the Colony enjoys is of an entirely anti-democratic character. There is an Executive Council composed of a number of ex officio members, such as the Colonial Secretary, the Colonial Treasurer, the Attorney General and others, and three unofficial executive members, selected by the Governor without any method of popular election, and more often than not out of a recognised clique, well known for their unwillingness to oppose Government policy in the interests of popular opinion, which is given no constitutional opportunity whatsoever of expressing itself.

The unofficial members of the Executive Council can only hold office for two consecutive periods of three years. In practice, they are very often allowed to retain their posts for the full six years and after a lapse of the requisite three years, the same gentlemen work their way back into the Council more or less as an established rota.

The Executive Council are in no way whatsoever an executive body. They are exclusively an advisory body and the elements in it, including the local elements, are sworn to secrecy and cannot divulge to the people what they have said, or what they have advised, /

advised, or even what they have heard at the Executive Council Meetings.

The power to legislate is mostly exercised by ordinance, and although in practice drafts of Ordinances are published about a month before their enactment into law, as a kind of invitation to the public to offer objections or criticisms, there is no constitutional machinery whatsoever to ensure that no law is enacted which is contrary to the wishes of the majority of the people. The régime prevailing, therefore, as between those who govern and those who are governed, is still more in accordance with the relationship to be expected between the conquerors and the conquered, than the régime to be expected to prevail in an integral part of the British Commonwealth of Nations.

Since 1921 there has been, it is true, a City Council, partly elected by popular vote under the provisions of the City Council Ordinance 1921. The powers of the City Council consist in the administration of the Public Health Ordinance and other cognate and local Government matters, but even this body is so constituted that the majority of its members are nominees /

nominees of the Governor, who can at any time out-vote the unanimous desires of the popular Councillors, who are at all times carefully kept in a minority. All petitions to the Government in England to allow the law to be altered so as to give the people a majority in the representation of at least the City Council have, so far, been refused. The population of the Colony is hardly 18,000 strong, so that its chances of obtaining a democratic form of Government, or better still of being absorbed into the democratic form of Government already prevailing in this country, are dependent upon the efforts made in this country by lovers of democracy and of the good name of England in its Colonies, rather than by the strength of the efforts which such a small community could reasonably be expected to make.

MEDICAL. The Senior Medical Officer is in charge of all medical administration under the Colonial Government, and controls the Colonial Hospital, Small-pox Hospital, Mental Hospital, Prison, Police and School Medical Services and District Medical Services. He is the official adviser /

adviser to the Government on all medical matters affecting the Colony. In spite of his title, the occupant of this post has always been a surgeon. The Senior Medical Officer and other members of the Colonial Medical Service are entirely independent of the City Council.

The terms of office in the Colonial Medical Service are only restricted by an age limit, voluntary retirement being permitted at 55 years of age and compulsory retirement at 60.

The other medical authority in the City is the Medical Officer of Health. He is the official adviser to the City Council on all questions of Public Health. The Medical Officer of Health is selected from the Royal Army Medical Corps. This appointment is dictated by the peculiar conditions obtaining on the Rock, which is a Naval base, a Military Fortress and a City. The system has very serious disadvantages. Each Medical Officer of Health holds office for a period of about five years only and the frequent change of official precludes a uniform policy of reconstruction since, by the time one medical officer of health has become thoroughly acquainted /

acquainted with the local conditions, his appointment is almost at an end and a successor with different views takes his place. In this way, very little has been achieved and progress has been slow.

Co-operation between the Senior Medical Officer and the Medical Officer of Health is usually satisfactory, but the former has more influence on medical policy.

SOCIAL /

SOCIAL CONDITIONS.

HOUSING. A large part of the town is built in a very irregular manner. Houses are massed and crowded together to such an extent that the streets, lanes and alleys, which separate one line of buildings from another, are very narrow. They are only ten to twelve feet wide in some cases, and one can easily look from the windows of a house on one side of the street into the rooms of the house opposite. The construction of the houses, as a whole, is very poor and quite unsuited to the climate. The houses are constructed usually of rubble masonry rendered in lime mortar internally and externally, with wooden floors, lath and plaster ceilings and pitched timber roofs covered with Algeciras or Moorish tiles. Many houses have flat roofs covered with Marseilles tiles. Most of the houses appear to have been built in a haphazard manner. They are old and shabby with few amenities. Ventilation and lighting are bad and bathrooms are non-existent. Within recent years some large blocks of flats have been built, some by the Government and others by private enterprise. Some of these modern buildings are constructed of reinforced /

reinforced concrete, others of structural steel. They have been erected in accordance with modern building bye-laws and their sanitation is immeasurably better. These new flats contain bathrooms. There is no general hot water installation provided in these new houses and the water is heated by means of gas geysers installed in each bathroom. The average house rent in Gibraltar is 18/- per month per square (one square = 100 sq. ft.). This rate applies chiefly to the working-class houses.

Apart from the overcrowding of the buildings, there is an excessive overcrowding of the population. In some cases a family of six or eight lives in one room with a kitchenette consisting of a corridor or passage bricked up to form a rectangle measuring about 5 ft. by 4 ft. The charcoal stove may or may not have a hood and flue.

INCOME AND COST OF LIVING. The wages of the workers are low when compared with British standards and in relation to the cost of living. Major R.A. Mansell (Annual Report 1939) in a strongly worded comment on the housing problem in Gibraltar wrote "It is /

is stated freely, and there is no reason why this should not be repeated, that Gibraltarian labour is not of the quality either in foot-pounds of mechanical toil or in actual technical skill, that can be found in other parts of Europe or the world. I always ask such critics what they would produce themselves did they have to live with a wife and three grown and growing children in one room - and nothing more - some fourteen feet square, on a wage of less than thirty and a rent of five shillings a week with no provision for sickness, unemployed, or old age, and a cost of living not greatly less than that obtaining in England."

MEDICAL SERVICES.

COLONIAL HOSPITAL AND STAFF. There is a Colonial Hospital for civilians of all ages and both sexes. A senior medical officer and two assistants, all chiefly interested in surgery, carry out the general work of the hospital which includes general medicine and surgery, obstetrics, gynaecology, paediatrics, and infectious and venereal diseases. These medical officers also conduct certain other duties, such as those /

those of police surgeon, prison medical officer, school medical work and visiting physician to the Mental Hospital. There is also an extra assistant surgeon, a general practitioner, who helps in these duties as well as the general duties of the hospital when any of the permanent staff is on leave.

The Colonial Hospital consists of two male wards, one surgical and one medical; one female ward where both medical and surgical cases are treated together; one male venereal ward; one small maternity ward and one children's ward for both medical and surgical cases. There is also an "infectious block" slightly detached from the main hospital, where isolation of infectious cases requiring hospital treatment may be carried out. There are also six private wards for paying cases. The total number of beds is about 100.

GENERAL PRACTICE. There are eight medical practitioners, two of whom are part-time District Medical Officers who attend the sick poor. Medicines for these patients are provided gratis from the Colonial Hospital Dispensary.

MUTUAL AID SOCIETIES. There are also a number of mutual aid societies which provide medical treatment and assistance to their members through the medium of some /

some of the general practitioners. These arrangements are, on the whole, most unsatisfactory from the point of view of both doctor and patient. The doctor receives about 4/6 per head per annum for attendance on adults and usually about half this fee for children.

There are no workmen's compensation or medical insurance schemes in existence in Gibraltar.

PUBLIC HEALTH DEPARTMENT OF
THE CITY COUNCIL.

MEDICAL OFFICER OF HEALTH. The Medical Officer of Health is always selected from the Royal Army Medical Corps for reasons explained under "Administration" (p. 6.).

NON-MEDICAL STAFF. Under the Medical Officer of Health are six sanitary inspectors who assist him in the execution of his duties. A full time clerk completes the personnel of the Department.

LABORATORY FACILITIES. A Public Health Laboratory under the direction of the Medical Officer of Health and staffed by a fully qualified analytical chemist and two assistants, is utilised chiefly for the /

the analyses of foods, drugs and water supplies. The bacteriological, biochemical and pathological services for the City are also carried out in this laboratory.

SMALLPOX HOSPITAL. There is no Infectious Diseases Hospital in Gibraltar, but a smallpox hospital is provided and is used mainly for maritime cases of this disease. One of the local practitioners is in charge of this hospital, as a part-time appointment, under the Colonial Government. Infectious diseases are usually treated in the patient's own home by his medical practitioner.

TUBERCULOSIS HOSPITAL. Just before the outbreak of the present war a special hospital for the treatment of tuberculous disease was completed and a specialised medical officer appointed to take charge of it, but it was never used for this purpose owing to the urgent needs for emergency hospital accommodation. With the cessation of hostilities and a return to peacetime conditions this scheme holds great possibilities.

HOME FOR THE DESTITUTE. Under the auspices of the Public Health Department is a "Destitute Sick and Tuberculosis Home." This Home is not quite what its /

Artificial Water Collecting Area on Eastern slope of Rock.

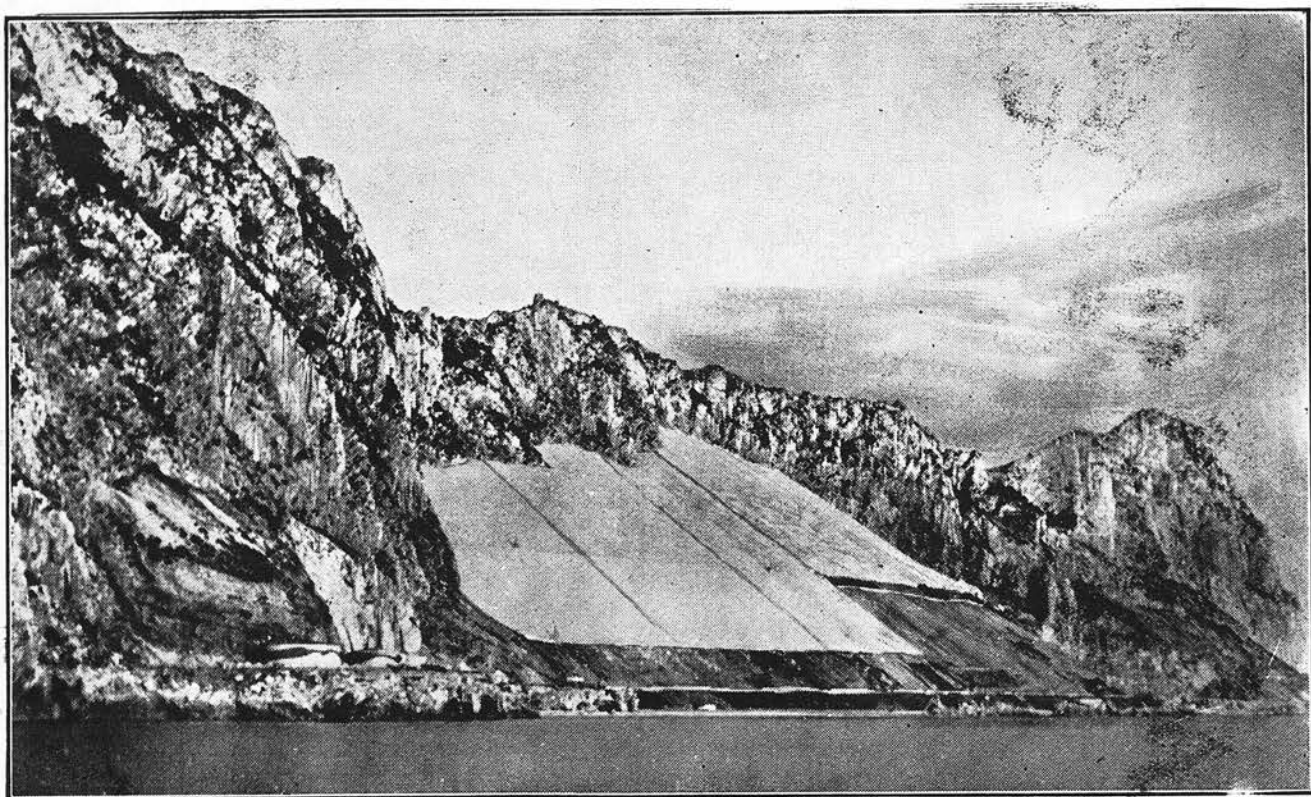


Fig. 2.

its name implies since it is chiefly used to accommodate folk who are destitute and/or have no one to look after them.

WATER SUPPLY. The source of drinking water is rain water. This is collected on special catchment areas constructed on the side of the Rock (Fig. 2) and stored in huge water tanks which lie some hundreds of feet underground in the rock. The water tanks are disconnected from the catchment areas at the beginning of the rainy season and it is only after these areas have been washed by the first rains that the collection and storage begins. The water in these tanks is frequently analysed, both chemically and bacteriologically. On a much smaller scale, every house possesses a cistern, usually under the basement of the house, in which rain water is stored from a collecting area on the roof or terrace of the building. Brackish water is used for sanitary purposes, including baths. The old system of carrying water by open buckets or in barrels from a street supply (fig. 3) and storing the water in a large earthenware container inside the kitchen should be abolished. This method of storing water in the house very /

Governor's Parade Public Water Fountain.

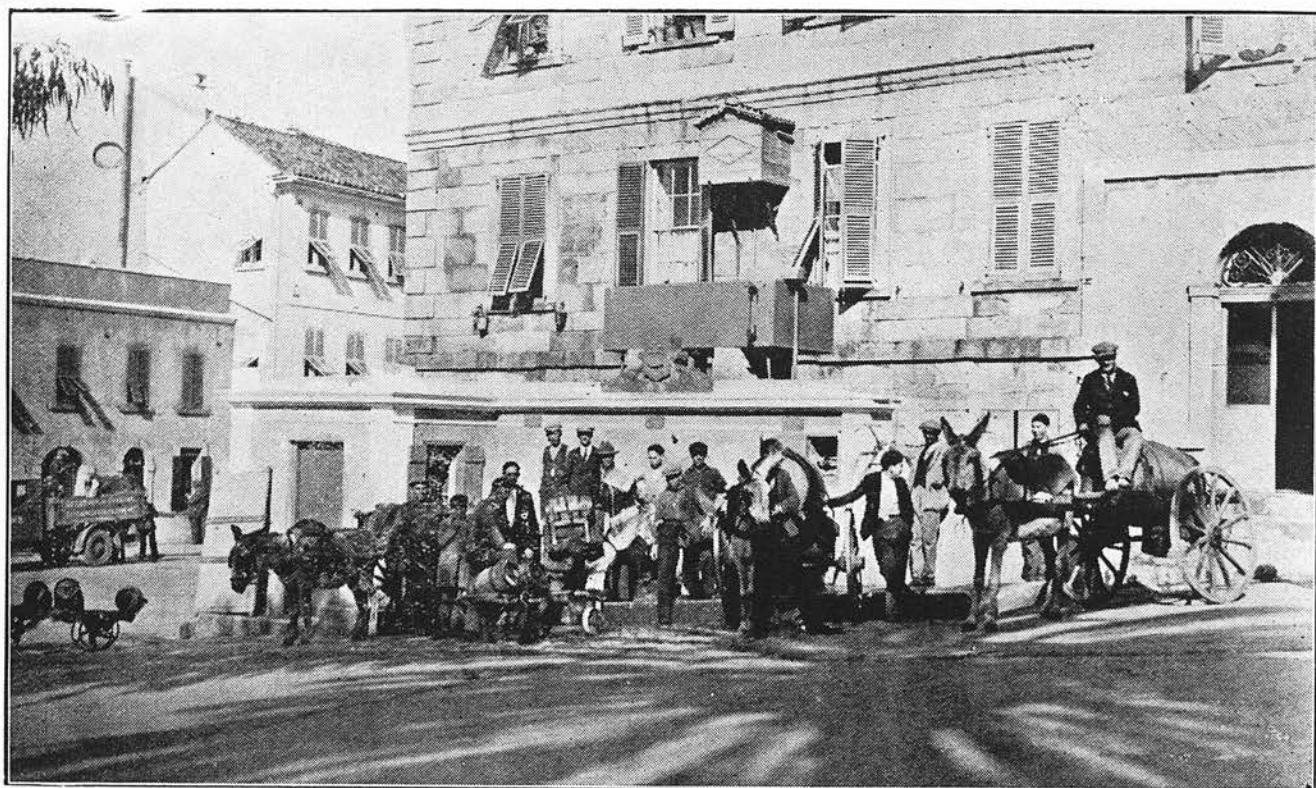


Fig. 3.

very frequently gave rise to the breeding of mosquitoes. These insects form a potential source of danger by reason of their spreading malaria. With rapid transport by air from such areas as Africa yellow fever becomes a potential menace also. Quite apart from the disease-carrying potentialities of these mosquitoes, and the facilities already existing for their breeding, must be mentioned the disturbed sleep which is a natural sequel to the bites of these all too common pests in Gibraltar.

SEWAGE DISPOSAL. This is by the water carriage system and the sewage pumping station now has storm reserve diesel engined pumping sets installed.

MILK SUPPLY. Gibraltar depends mainly on Spain for its milk supply. It is illegal to sell milk to the public until it has been boiled. To control this statutory obligation frequent sampling of the milk sold by the vendors is undertaken.

VACCINATION. It is compulsory to have children vaccinated against smallpox within the first three months of life, and to have them re-vaccinated at the age of twelve years. A general practitioner is appointed /

TABLE I. THE INFANTILE AND NEONATAL MORTALITY RATES AND THE STILLBIRTH RATE IN GIBRALTAR AND IN ENGLAND AND WALES FOR EACH OF THE YEARS 1915-39 INCLUSIVE.

YEAR.	STILLBIRTHS PER 1000 TOTAL BIRTHS.	NEONATAL DEATH RATE PER 1000 LIVE BIRTHS.	INFANTILE DEATH RATE PER 1000 LIVE BIRTHS.	
			GIBRALTAR.	ENGLAND & WALES.
1915			90.2	110
1916			123.5	91
1917			113.5	96
1918			124.5	97
1919			107.8	89
1920			128.0	80
1921	50.9	28	102.5	83
1922	54.3	19.1	103.8	77
1923	49.5	32.9	109.6	69
1924	67.1	22	91.0	75
1925	65.3	24.2	83.0	75
1926	65.6	32.7	107.9	70
1927	24.2	33.1	99.1	70
1928	46.9	33.6	122.9	65
1929	56.0	23.1	46.4	74
1930	56.6	22.9	71.3	60
1931	43.6	42.4	61.0	66
1932	46.8	28.9	60.7	65
1933	67.9	14.0	39.2	64
1934	32.8	26.1	54.0	59
1935	107.0	30.0	67.4	57
1936	70.0	29.6	62.1	59
1937	59.2	23.6	68.2	58
1938	39.7	33.1	74.4	53
1939	55.0	37.0	79.4	50

appointed to the post of public vaccinator, which is a part-time appointment such as obtains in England and Wales. It is a noteworthy fact that smallpox among the civilian population of Gibraltar is almost unheard of, and the special hospital set apart for the treatment of this disease is used mainly for maritime cases.

DUST CONTROL. Control of street dust is achieved by spraying brackish water over the street surface, once daily in the winter, and twice daily in summer, as a routine measure of sanitation.

INFANTILE MORTALITY.

The statistics of Infantile Mortality quoted in this paper are derived from the annual reports of the Medical Officer of Health during the years 1921-39 inclusive. Figures quoted before that period have been taken from the 1924 report (Smales, 1924).

THE INFANTILE MORTALITY RATE. Table I gives the infantile mortality rates for the years 1915-39 inclusive. These have also been presented in graphic form (fig. 4). A comparison has been made with /

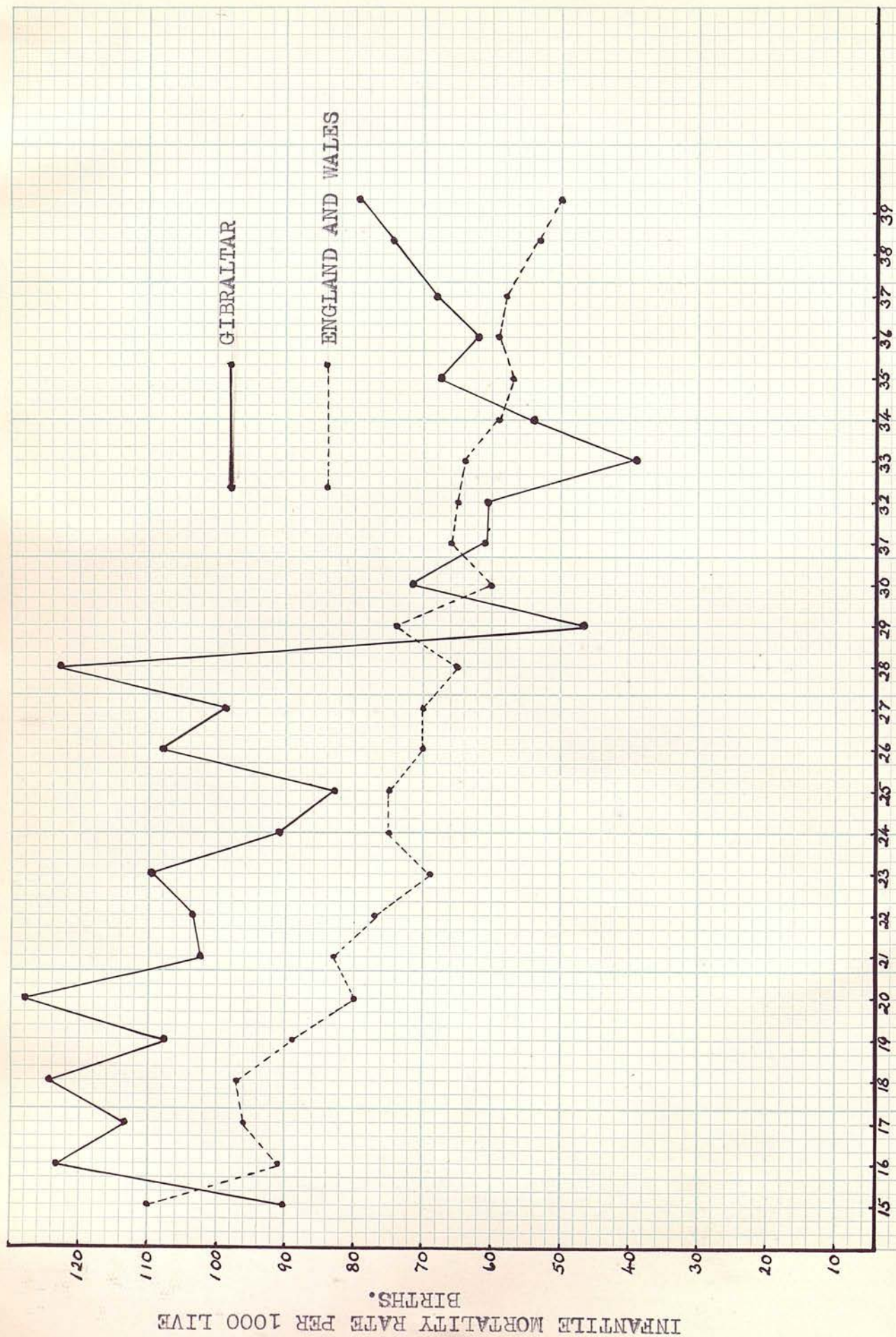


Fig. 4. The Infantile Mortality Rate in Gibraltar and in England and Wales for each of the years 1915-39 inclusive.

with the infant mortality prevailing in England and Wales. The neonatal death rates and still-birth rates for the years 1921-39 inclusive are also given in Table I.

THE NEONATAL MORTALITY RATE. This is not unduly high. It compares favourably with that in England and Wales. The average rate during the years 1921-39 was 28.11 per 1000 live births in Gibraltar and 31.66 per 1000 live births in England and Wales. These figures demonstrate the interesting fact that the higher infantile mortality rate which prevailed in Gibraltar in the period under review, was due entirely to the high death rate in infants over one month old. This is a good omen, for it has been found much more difficult to lower the neonatal death rate than the rate in older infants in England and Wales and in other countries with an even lower infantile mortality rate. Nevertheless, the institution of a modern maternity service and of paediatric care for the newly born should result in a definite lowering of the neonatal death rate.

THE STILLBIRTH RATE. The average rate for the period 1928-39 was 54.79 per 1000 total births in Gibraltar. /

Gibraltar. The rate in England and Wales for the corresponding period was 40 per 1000 total births.

From a long personal experience of midwifery in Gibraltar, I feel that a considerable proportion of these stillborn infants could have been saved if a doctor had been in attendance from the beginning of labour. I believe the following factors influence the stillbirth rates favourably:-

1. The great majority of primiparae are young (between 18 and 25).
2. Rarity of the incidence of rickets with its consequent pelvic deformities.
3. Infrequent use of general anaesthetics.

The year 1935 showed an unusually high figure. This may be explained by the premature cessation of pregnancy brought about by nervous influences during the Abyssinian crisis, when the imminent danger of going to war with Italy was very realistically felt in Gibraltar.

Fulfilment of the plans for a modern maternity service should considerably reduce the stillbirth rate.

THE CAUSES OF DEATH. Unfortunately the certification of infantile deaths leaves much to be desired /

TABLE II. DETAILED STATEMENT SHOWING THE CAUSES OF DEATH UNDER 1 YEAR IN THE YEARS 1913-29 INCLUSIVE.

CAUSES OF DEATH.	1913	1914	1915	1916	1917	1918	1919	1920	1921	1922	1923	1924	1925	1926	1927	1928	1929.	TOTAL.
Enteritis	9	13	6	12	7	3	16	13	11	15	10	5	5	16	8	9	2	160
Atrophy, Debility, Marasmus.	5	6	4	14	13	19	5	14	11	7	5	12	8	4	7	7	5	146
Premature birth.	2	3	10	3	6	1	9	10	5	3	7	-	1	10	4	6	2	82
Pneumonia	-	2	2	1	7	8	5	1	5	6	3	8	6	8	4	6	3	75
Meningitis	4	3	4	2	3	3	2	3	1	2	1	4	2	2	-	1	-	37
Convulsions	3	1	1	4	2	4	-	-	1	-	1	1	2	1	-	3	-	24
Bronchitis	-	1	1	1	-	1	2	2	1	1	1	-	2	-	3	-	1	17
Whooping cough.	2	-	-	-	1	-	-	-	-	2	6	-	-	-	-	5	-	16
Atelectasis	-	1	1	1	2	2	-	1	-	-	-	-	-	-	-	3	1	12
Syphilis	-	1	-	-	-	1	-	1	2	-	-	1	1	-	2	-	-	9
Measles	-	-	-	1	-	-	-	-	3	1	-	-	-	-	-	3	-	8
Diseases of the heart.	2	-	-	1	-	1	-	-	-	-	-	-	2	-	2	-	-	8
Diarrhoea	-	-	1	-	1	-	2	-	-	-	-	-	-	-	2	-	1	7
Suffocation	-	-	-	-	-	-	-	1	-	1	-	1	1	1	1	-	-	6
Intestinal obstruction.	1	1	1	-	-	1	-	-	-	-	-	-	-	1	-	-	-	5
Haemorrhage	-	-	1	-	-	1	-	-	-	-	1	1	-	-	-	-	-	4
Septicaemia	-	1	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	3
Rickets	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
Diphtheria	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Starvation	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
OTHER CAUSES	1	2	-	-	-	-	-	-	2	-	4	-	1	3	3	1	2	19.

desired for, without a post-mortem examination, the certified cause of death is inaccurate in a considerable proportion of infants who die in the first year and in the majority who die in the first month (Miller, 1942).

With a view to better certification of deaths in the future, two measures suggested by Miller should be introduced in Gibraltar. These are:-

1. A copy of the Manual of the International List of the Causes of Death should be distributed to all members of the medical profession.

2. Special forms for the certification of deaths in infants under one year should be provided. Furthermore, post-mortem examination of infants, where the cause of death is not clear, should become a routine procedure whenever possible. The projected improved medical service provides for a specialist in bacteriology and pathology.

In spite of unsatisfactory diagnoses in many cases, valuable information can be adduced to indicate the direction in which measures for the reduction of the high mortality rates must be instituted. I will discuss this later on and suggest appropriate reforms.

A detailed statement showing the incidence of the various causes of death under one year during the period 1913-29 is given in Table II. Further observations on the principal causes of death will be made in order of precedence.

Enteritis.

Enteritis. Enteritis appears to be the primary cause of death in infants under one year in Gibraltar. From personal experience I know that the greatest incidence occurs during the hot summer months. Flies, the system of refuse disposal and the existence of horse stables in close proximity to dwellings, together with the scandalous overcrowding, are all important contributing factors. The measures suggested later on to combat this pest and the encouragement of breast-feeding will do much to minimise this preventable scourge of infant life.

Atrophy, Debility and Marasmus. This large heterogeneous group embraces a great variety of diseases and need not, therefore, be considered further. These terms usually indicate the absence of a diagnosis and have little statistical or scientific value.

Prematurity. This term, like those in the previous category, is unsatisfactory except in the case of very small immature infants who constitute only a small proportion of those certified as dying from prematurity. Most premature infants in the higher weight group are capable of survival if they receive /

receive reasonable care and those who die, do so from other causes. An up-to-date maternity service with facilities for expert medical and nursing care of premature infants would diminish the mortality from prematurity per se.

Pneumonia. This disease is more prevalent in the winter months. No distinction is made between alveolar pneumonia and broncho-pneumonia. Considering the age period under discussion, the latter probably comprises the greater number of the cases. In connection with this disease, I should like to mention that up to 1939 no oxygen or oxygen tent was available for the treatment of respiratory diseases either at the Colonial Hospital or in private practice. Cost of transport has always been the alleged reason for the lack of this valuable therapeutic agent in Gibraltar.

Meningitis. No differentiation of the type of meningitis is made in this category. Moreover, the infrequency with which lumbar puncture is performed would seem to throw doubt on the accuracy of diagnosis.

"Convulsions" is given as a cause of death and no /

no indication is made of the underlying condition.

Bronchitis as a cause of death appears sufficiently frequently to merit attention. It is reasonable to think that many of these infants died of broncho-pneumonia as bronchitis per se (except the capillary form) is not usually a cause of death.

Whooping-Cough. Whooping-cough appears to influence the mortality rate only when it assumes epidemic proportions. The same applies to measles which in this table takes eleventh place as the cause of death in this age period.

Other Conditions which comprise only 13.5% of the total number of deaths, do not occur sufficiently often to merit individual consideration.

FLUCTUATIONS IN THE DEATH RATE. The fluctuations in the infantile death rates from year to year (fig. 4) are rather difficult to explain from the information supplied in these Health reports, since the living conditions of the population, climatic influences and medical services have been fairly constant factors throughout this period. I cannot account for the extraordinary fall in the infantile mortality rate in 1929 nor for the subsequent maintenance of a lower rate /

rate than had prevailed hitherto.

CAUSES OF THE FLUCTUATING DEATH RATE. In considering the fluctuation it must be borne in mind that a greater degree of instability of the death rate is to be expected in a small community like that of Gibraltar than in a nation of many millions where unfavourable factors in one area tend to be neutralised by favourable factors in another. In his annual report Lt. Colonel W.C. Smales (1925) attributed the reduction of infantile mortality in that year to the following factors:-

(a) "The provision of a child Welfare Centre which was started in 1918 and is now well attended and doing excellent work."

(b) "The provision of a "Maternity Ward" at the Colonial Hospital in 1921, which has proved to be of the greatest benefit to Gibraltar."

(c) "The provision of a "Children's Ward" at the Colonial Hospital in 1922, which has filled a long felt want and has been of the greatest value."

(d) "The provision in 1918 of a Nurse for home visiting, so that some supervision may be kept over the children at home and advice given as to care and feeding."

In /

In this same report Smales writes about the overcrowding conditions in Gibraltar as follows: "Cases exist where expectant mothers are living and sleeping in one small room with the husband and several children. In some cases more than one family occupy the room. In addition to the existence of pregnancy these circumstances are sometimes made worse by the complication of a consumptive member of the family occupying the same room."

The following year, however, gave an infantile mortality rate of 107.9 per 1000 live births, an increase of 24 per 1000 births as compared with the previous year. Smales' (1926) consoling comment on this is "The adverse effect of a somewhat higher infant mortality on the natural increase in population is counteracted by the high birth rate prevailing."

On several occasions the Medical Officer of Health concerned has remarked that the lowering of the infantile death rate was due to the activities of the so-called Child Welfare which had weighed more infants than in the previous year and had given out /

out so many more hundreds of tins of condensed milk. In view of my long experience in general practice in Gibraltar and of my intimate knowledge of the inefficiency of the child welfare centre, I regard the observations of Smales and other medical officers of health to be largely irrelevant to the question of the fluctuating infantile mortality. Other causes must be looked for to explain these fluctuations. During the years under review certain factors prevailed in Gibraltar which I believe help to explain the ups and downs of the infant death rate.

In my view the following two factors were the principal causes of the fluctuating death rate in Gibraltar in the period under review.

(a) A considerable number of workers derive their source of livelihood from the port and their incomes vary according to the amount of shipping calling at Gibraltar.

(b) Two currencies, Spanish and English, were legal in Gibraltar up to 1936 when the Civil War in Spain began. People working in the Dockyard and other Government Departments received their pay in English currency but most commercial transactions were /

were in Spanish currency. Thus, undue instability in the cost of living resulted from fluctuations in the rate of exchange. When the exchange was favourable they exchanged their money into Spanish currency and thereby increased their buying power for food by nearly double, but, when it was unfavourable, their purchasing power was correspondingly diminished.

As both these factors are unstable their favourable or adverse influences soon made themselves felt amongst the working population. Thus, in 1915-18, although there was good earning power, the value of sterling in relation to the peseta was one-quarter or one-third of its usual value. This, coupled with the increased cost of living during these years, accounted for the increased death rates during that period. Again, 1920-22 were years of severe trade depression and the shipping tonnage calling at Gibraltar fell considerably. This was reflected in the infantile death rate which rose to 128, 102.5, 103.8 per 1000 live births in each of the three years respectively. The year 1933 was an exceptionally good year from an economic point of view and it had the lowest death rate that has ever been recorded in Gibraltar, viz. 39.2 per 1000 live births. In 1935 the Abyssinian crisis had repercussions in the shipping trade /

trade in Gibraltar and a consequent rise in the infantile death rate.

In 1936 the Spanish Civil War broke out and Gibraltar found itself with a sudden increase of population. About 10,000 refugees came into the City in the first few days, and, although many of these were sent to various parts of Spain, several thousand remained in Gibraltar up to the beginning of the World War in 1939. In spite of all this extra overcrowding, the infantile mortality was not unduly increased. Apparently the overcrowding factor could not do much more damage than it had done throughout all these years. In 1936 also Spanish currency was made illegal in Gibraltar. This produced an increase in the cost of living but certain compensatory adjustments were made in rates of pay. The reform had the effect of eliminating the fluctuations due to the vagaries of the money exchange.

It appears then, from the above observations, that the purchasing power of a family has a very direct influence on infantile mortality.

THE /

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THE /

Maternity and Child Welfare Centre, 1929.

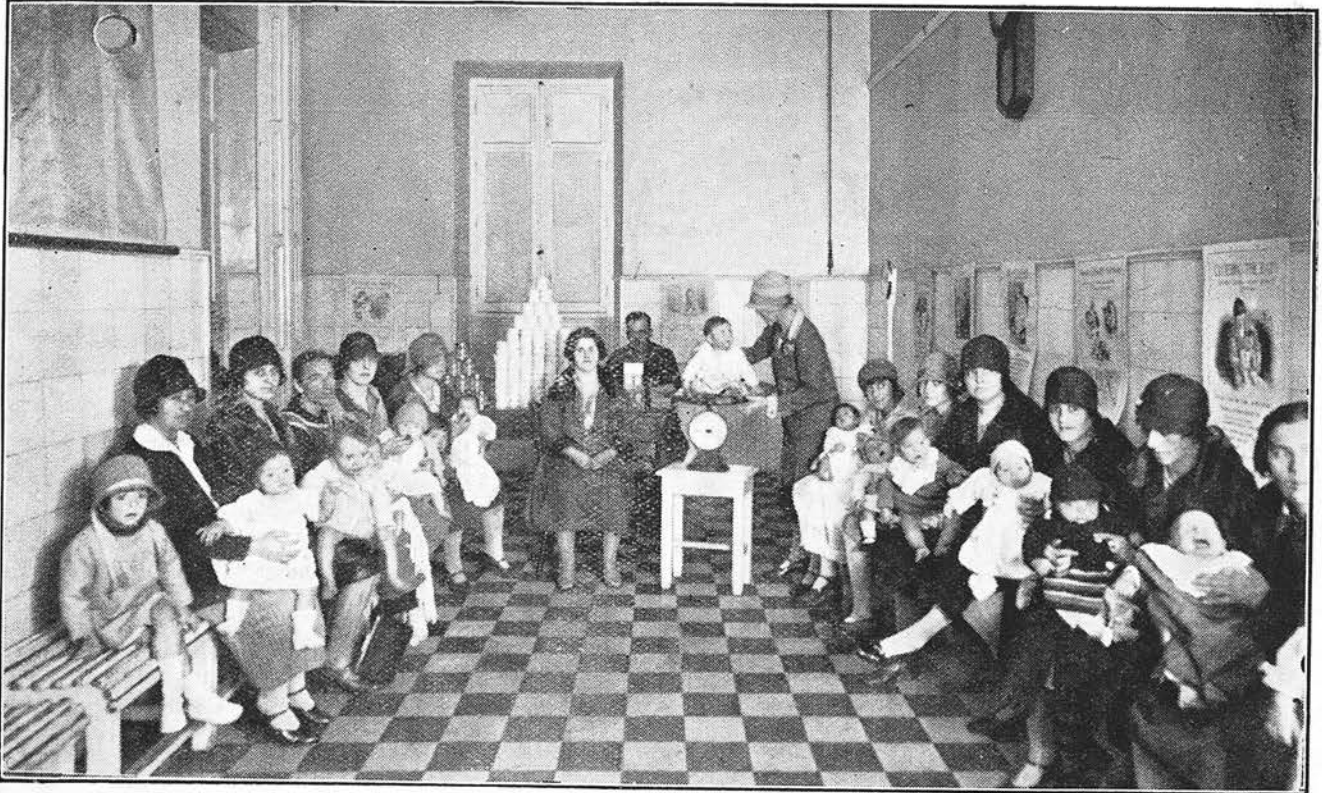


Fig. 5. Note inaccurate type of spring weighing machine and weighing of infants in their clothes, also the proud display of tins of sweetened condensed milk. The gentleman sitting at the back of the photograph is a sanitary inspector who supervises the clinic.

THE PRESENT CHILD WELFARE SCHEME AND
ITS SHORTCOMINGS.

It is an extraordinary fact that since the beginning of the Child Welfare Scheme in 1918 up to 1939 there has been practically no progress in its activities. Fig. 5 illustrates the running of a clinic.

G.S. Parkinson (1922) wrote "Of course, it must be realised that there is no real "Welfare" centre in the true sense of the term; a beginning has been made and it now needs developing." At this time the work done in the year appears to have consisted of the following limited activities:- The weighing of 747 infants; 170 visits paid by a "trained" nurse to the homes of these children; the distribution of 3,230 tins of sweetened condensed milk; 160 pots of Virol and financial help to the extent of pesetas 436.00 (approximately £15).

Twelve years later R.A. Mansell (1934) wrote "Average number of children attending:- 84; average number of mothers - 108; milk issued - 5,293 tins; food preparations issued (Virol, Glaxo and Lactogen) - 92 pots; feeders - 92. The Welfare Nurse paid 472 visits /

visits to the homes of children."

As recently as 1939, twenty-one years after the inception of the Scheme, R.A. Mansell (1939) wrote:-
 "Average attendance at Child Welfare Centre - 108.
 Issues of milk equivalent to approximately 15,407 pints.
 Home visits by Nurse from Centre - 396. Our success is due to the very high standard of care for infant life which is characteristic of Gibraltarians and to the care and attention of the Centre's Nurse. I say this in spite of the high mortality rate recorded in this Report because I know intimately the deplorable conditions under which a high percentage of the population have been forced to live."

I should like to point out that the reference to a trained nurse of the Child Welfare Centre is somewhat misleading to a reader in Britain. The lady in question is an excellent and conscientious locally trained midwife, but without the essential training necessary for conducting the work of a health visitor as is understood in Britain. The welfare clinics held at the Centre are not attended by a doctor.

During the period under review not a word is mentioned about encouraging breast feeding, although it appears obvious that a decline was taking place, judging /

judging by the increased distribution of condensed milks and feeders. Unfortunately, there are no statistical data to corroborate this impression.

PART II.SUGGESTED MEASURES FOR THE FURTHER
REDUCTION OF INFANTILE MORTALITY IN GIBRALTAR.

Considering the size of the City of Gibraltar and its limited population an ideal scheme should not be difficult to work out for a very efficient control of infant and child life in health and disease. Unfortunately, most Governments are satisfied by showing efficiency on paper, and when it comes to the practical side that supposed efficiency is greatly handicapped by economic restrictions. This is amply proved by the constant struggle of the various Medical Officers of Health in Gibraltar, and particularly of Major R.A. Mansell, to obtain decent living conditions for the civil population.

I shall limit myself to offering practical suggestions for a scheme which I hope will be instrumental in reducing the infant morbidity and mortality with a consequent amelioration in the health of the future adult population. These seeds of good intention cannot, of course, mature unless drastic steps are taken to offer the people healthy housing conditions /

conditions and this means, as the reader may have gathered, the complete replanning and reconstruction of the greater part of the town. This appears a big proposition, but one which seemed almost inevitable in the years 1940-42 when it seemed highly probable that Gibraltar would be laid waste by bombardment. The fact that the city of Gibraltar has been miraculously spared from total destruction during those years should not deter the authorities concerned from carrying out the necessary reconstruction which is so urgently needed, and which would have had to be done had Gibraltar been less fortunate. In fairness to the Gibraltar Government it must be stated that there are now big plans for this reconstruction, and if military objections, which have been one of the major stumbling blocks in the past, can be overcome, there is no doubt that the housing problem will be satisfactorily solved.

HOUSE /

HOUSE CONSTRUCTION.

There are certain points in connection with the construction of the new houses which I think are of great importance in lowering the incidence of disease. They are as follows:-

- (1) Running Water. Hot and cold water installations must be fitted in all houses.
- (2) Refuse Disposal. A hygienic method for the disposal of refuse is essential. This could be most simply done by providing a direct "shoot" from the kitchen to the basement of the house where an adequate incinerator would dispose of the refuse in a clean and economical manner and at the same time provide heat for the hot water system in the house. This method of refuse disposal, associated with the name of Garchey, has been in operation in France for many years, and, while only in the experimental stage in Britain where it is practised in Leeds, has proved to be a means of disposal with great potentialities. The system of dustbins is a fruitful source for the prodigious breeding of flies, apart from the unpleasant odours emanating from such contraptions and from the motor vans which collect the refuse from /

from house to house.

(3) Shower Baths. In order to avoid baths being used as "storehouses" or "washtubs" by many of the people who are unacquainted with such sources of personal hygiene it is suggested that shower baths be installed instead. Two other advantages (important on account of the local conditions) derived from this arrangement would be (a) economy of space; (b) economy of water, which is at times a very important factor in Gibraltar.

(4) Domiciliary Isolation of Cases of Infectious Disease. As has been mentioned before, there is no hospital for Infectious Diseases in Gibraltar and notification of certain diseases is useful only for statistical purposes, as it is a practical impossibility to isolate cases of infectious disease under the present living conditions. Moreover there is a general and very strong reluctance on the part of the people to go into hospital for anything less than a surgical operation. Considering the special circumstances of the place and the idiosyncrasies of the people, and also taking into account the risks of cross infection that commonly occur when infectious cases /

cases are treated in open wards, it is suggested that each of the new houses built should have a "sick room" where proper isolation of a patient may be possible. In the case of large blocks of flats a system of cubicles should be included in the building, allowing one cubicle per ten children residing in the block.

THE MATERNITY SERVICE.

Any scheme for the protection of infant life must necessarily include an efficient service for the proper care of expectant mothers during pregnancy and childbirth. At present there exists the nucleus of a maternity scheme at the Colonial Hospital, from which a fairly efficient antenatal, natal and post-natal service could be evolved. I understand that it is the intention of the Gibraltar Government to appoint a specialist in obstetrics and gynaecology to take charge of the maternity services in the Colony. I shall not, therefore, encroach upon the duties of my future colleague by drawing up a complete scheme of a suitable /

suitable service. I should like, however, to make certain observations, as the result of over twenty years experience of medical practice, including a good deal of maternity work, in Gibraltar. They are as follows:-

MIDWIVES. The present standard of midwifery amongst the practising maternity nurses is very low. Most of them have little knowledge of the subject and very elementary notions of aseptic methods. With the exception of one midwife the general tendency is not to call in medical aid until they find themselves in great difficulties and the patient is almost exhausted by prolonged labour.

DEVELOPMENT OF MATERNITY HOSPITAL. A large majority of mothers prefer to be delivered in their homes, but the knowledge that a specialist's services were obtainable at the hospital would undoubtedly increase the number of women availing themselves of this new service. The maternity ward at the Hospital would need an important extension and it is hoped that the modern trend of having mothers with their babies in separate apartments will be incorporated in the new scheme.

MOTHERCRAFT /

MOTHERCRAFT INSTRUCTION. Lectures on mother-craft and general hygiene are an essential part of a maternity scheme in Gibraltar and they would need to be given both in Spanish and English.

CLINICAL RECORDS OF MOTHERS. Proper records should be kept of the health of the mother during pregnancy, the type of labour and results of delivery.

POST-NATAL CARE. Post-natal care of the mother delivered in hospital should be continued until considered necessary by the obstetrician, and cases should not be prematurely discharged on account of "lack of beds" or because of domestic problems of the mother. I have known women to have been discharged from hospital on the 5th day after delivery and to take up heavy household duties immediately.

PAEDIATRIC CARE FOR NEWBORN. A paediatrician should take over the care of the newly born.

THE /

THE PAEDIATRIC SERVICE.

This important branch of preventive medicine can be said to have existed in Gibraltar since 1918, but only on paper, and up to 1939 it had not been developed except perhaps as an artificial milk supply depot.

AIMS OF THE SERVICE. Facilities have at last been granted by the Government which will allow of the organisation of a scheme, which, although perhaps not an ideal one, will help a great deal in reducing the morbidity and mortality of infants and children. The writer, as a specialist paediatrician, has been appointed to take charge of this service. It is my opinion that the physician interested in the welfare of children should have access to the practice of both preventive and curative medicine in children. The combination of these two aspects of medical practice affords a greater interest and will lead to greater efficiency, for the preventive and the curative aspects are complementary and should not be divorced.

The /

The size of the city of Gibraltar, its limited child population and the fact that there will be only one paediatrician appointed for the whole town, offers perhaps a unique opportunity of devising a really comprehensive and well integrated paediatric service. The care of the infant will begin at birth and there will be continuity of supervision thereafter in the Home, Welfare Clinic, Nursery School, School and Hospital, in both health and sickness.

It is hoped that through discussions on subjects of obstetric and paediatric interest at meetings of the British Medical Association held fairly frequently in Gibraltar and usually well attended, the general practitioner will be helped in refreshing his knowledge of these important aspects of his practice.

POPULARISING THE SERVICE. All these innovations will require the co-operation of the parents and adequate propaganda by means of lectures and health talks, mothers' club, radio, etc. These will no doubt arouse the necessary enthusiasm in parents to guarantee the success of the Service.

INDIVIDUAL HEALTH RECORDS. It is proposed to keep a complete health record of children from birth until their school leaving age.

INFANT AND CHILD WELFARE CLINICS.

NUMBER /

NUMBER OF CLINICS. To facilitate the attendance of mothers with their babies it will be necessary to establish three clinics. One large clinic should be situated in the neighbourhood of the Colonial Hospital, which is centrally placed and accessible to the residents who are likely to attend the clinic. The South District and the North District which includes Catalan Bay Village will require much smaller clinics, as these districts have a much smaller population than the town proper.

HEALTH VISITORS AND VOLUNTARY WORKERS. Each district should be supervised by a fully qualified health visitor, who will be assisted by a staff of voluntary workers. A large number of young women volunteers were trained in first aid and home nursing during the four years immediately preceding the outbreak of the present World War. They were very efficient and keen on their work, and I have not the slightest doubt that many of these will gladly help in the clinics as well as with the district nursing which I hope to introduce in Gibraltar in connection with this Health Scheme. /

Scheme. The voluntary workers will be given opportunities by means of lectures and demonstrations to improve their knowledge of Infant and Child Welfare.

OBJECTS OF CHILD WELFARE CLINIC. (a) To act as educational centres for mothers, for better understanding in the upbringing of their children. The Infant and Child Welfare Clinic must necessarily be a training school for mothers where by their regular visits, and with the aid of lectures on elementary principles in Child Life and Health, a keener interest and pleasure from the development and growth of their children, will be promoted. There is an increasing number of women in the world who look upon motherhood as something which interferes with their liberty for enjoying life. This same attitude is assumed when it comes to breast-feeding. In Gibraltar breast-feeding is on the decline, as in most so-called civilised communities, but I have the impression that it has not declined to the same extent as in Great Britain. Ignorance of the serious consequences which omission of breast-feeding may have on the future nutrition and health of their babies, and doubt /

doubt as to their capabilities of success, coupled with the idea that artificial foods are just as good, comprise the main reasons for the decline of breast-feeding in Gibraltar as elsewhere. Gibraltar is a prosperous colony and the satisfactory economic circumstances and ample domestic help given to mothers by relations and friends usually ensure a favourable background for successful breast-feeding, so there would appear to be a reasonable prospect of halting the decline in breast-feeding if suitable measures for popularising it are adopted.

(b) To keep well children healthy by proper guidance, especially relating to encouragement of breast-feeding and feeding difficulties.

(c) The early detection of abnormalities or incipient disease.

(d) No drugs will be supplied and only minor curative treatment given. Vitamins and iron, however, will be provided for the prevention of deficiency states.

(e) Provision should be made for vaccination against smallpox and preventive inoculations against diphtheria, whooping-cough, etc.

(f) /

(f) Infants and children up to three years of age may attend the clinics.

CONSTRUCTION OF CLINICS. In considering the construction of an Infant and Child Welfare Clinic there are certain points which should be taken into account. These are:-

1. The grouping of a large number of infants with their mothers in one waiting-room is a fruitful source of cross-infection.

2. At times the clinic is inevitably converted into a mixture of a hospital out-patient's department (without its facilities) and a preventive clinic. In other words, sick babies and well babies are all mixed together in one room. I have seen cases of whooping-cough, acute gastro-enteritis, chicken-pox, acute "sore" throats, scabies and impetigo all in the course of an afternoon's work at a baby clinic.

Although sick children will not be treated at the Welfare Clinics, it is a psychological mistake to turn away any mother on her first visit with a sick child, without having had the reassuring advice which she has come to seek from the clinic doctor. It is better and more humane to see the child and direct the /

the mother to the proper quarter for treatment.

3. Instead of a common waiting-room separate cubicles should be provided for each mother and child to diminish the likelihood of cross-infection.

4. There should be a reliable weighing machine in a separate room.

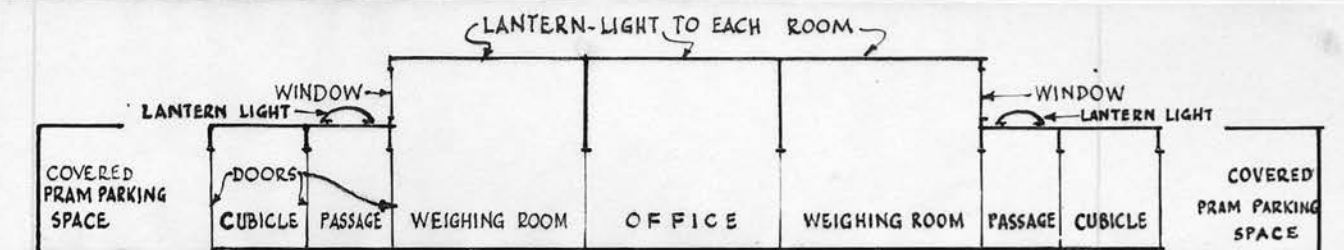
5. The walls of the doctor's consulting room should be sound-proof. Otherwise it should be situated as far as possible from the weighing room and dressing rooms, to facilitate freedom from noise during examination of babies.

6. Next to the doctor's consulting room a quiet room should be reserved for Test Feeding.

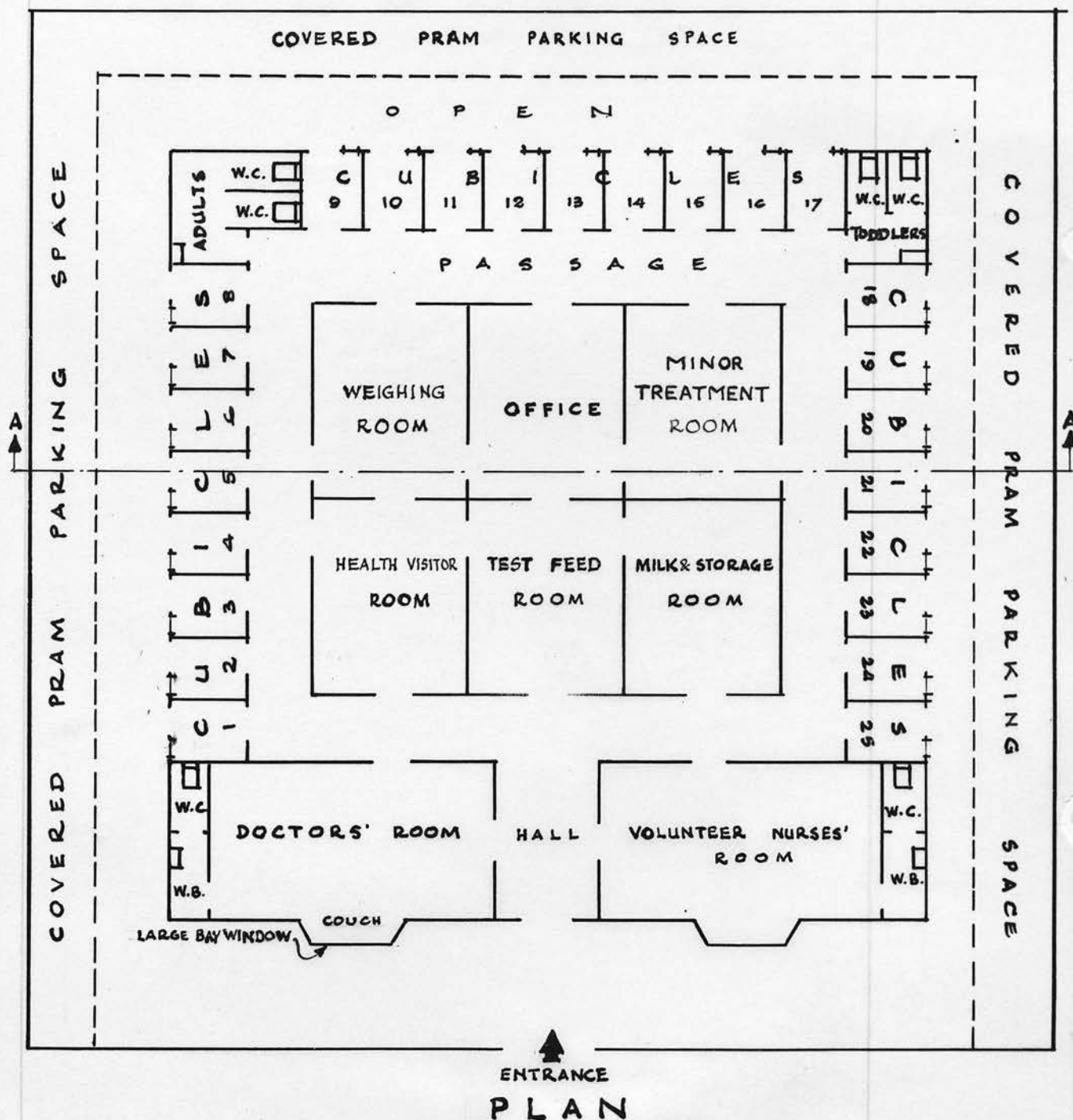
7. A room should be provided for the clerical staff, where patients' record cards may be kept and other administrative work of the clinic carried out.

8. Rooms are also necessary for the health visitor and voluntary workers.

9. An electric kitchen and milk storage room should be provided, including a frigidaire where essential stocks of preventive inoculations and infant foods may be stored. Fresh milk in Gibraltar is difficult to keep because of the climate and is too /



SECTION A-A.



NOTES.

1. ALL CUBICLES HAVE TWO DOORS AND ONE WINDOW EACH,
2. ELECTRICAL INDICATION LIGHTS COMMUNICATING CUBICLES AND WEIGHING ROOMS.
3. BUILDING SHOULD BE CENTRALLY HEATED FOR WINTER.

SCALE: 1 INCH = 12 FEET.

Fig. 6. Diagram of proposed Child Welfare Clinics.

too variable in its caloric value - owing to the addition of water by unscrupulous salesmen - to be a reliable food for infant feeding and any artificial feeding should be based on dried or unsweetened condensed milks.

10. The building should be provided with running hot and cold water, lavatories for adults and toddlers, adequate heating and there should be facilities for the parking of babies' perambulators.

11. A maximum of 25 babies only will be seen by appointment at each session.

12. The clinic should begin at the appointed hour. It is unkind and discourages regular visiting when the mothers are kept waiting unduly.

A plan of the type of child welfare clinic outlined above and suitable for Gibraltar is shown in fig. 6.

MOTHERS' CLUB. In order to encourage and guide mothers and potential mothers it is suggested that a mothers' club should be formed, with premises adjoining the clinic. The object of this club would be:- /

be:- (a) To promote interest in furthering the development of the Child Welfare movement. (b) The acquisition of knowledge by means of lectures, educational films, literature, etc. on elementary hygiene, nutrition and food values, clothing etc.

TREATMENT OF THE SICK CHILDREN.

As has been stated, the Colonial Hospital provides one children's Ward, where surgical and medical cases are treated together. It is hoped that constructive alterations will be carried out in this department of the hospital to comply with modern conceptions of cross-infection, (M.R.C. War Memorandum No. 4, 1944; Jacoby, 1944). Arrangements will also have to be made at the Hospital for regular Out-Patient Clinics for sick children.

The paediatrician will take charge of all medical cases and should maintain close co-operation with the surgeon in the medical treatment of surgical cases before and after operation, especially with a view to correcting nutritional deficiencies (Rep. Int.-Dept. Comm. Med. Schools, 1944).

NURSERY /

NURSERY SCHOOLS.

After the age of three and up to seven the supervision of the child's health shall be continued at the nursery school. It is realised that at this age maternal care is the ideal for the child but, when the choice lies between neglect and nursery school, there is no doubt of the enormous advantage of this institution.

OBJECTS OF NURSERY SCHOOLS. These are:-

1. Medical. Supervision of children's health. The provision of open air life, sunlight, exercise and play, rest and proper food.
2. Educational. (a) Training through habit in elements of hygiene, cultivation of social instinct, self-reliance and independence. (b) Children between 5 and 7 shall be given elementary lessons in preparation for entry into the ordinary school.

This age period is a most vulnerable one in the life of the child, both from the physical and psychological aspects and therefore no trouble or money /



money should be spared in obtaining the best possible conditions in the construction of adequate buildings and acquiring a suitable trained and competent staff. The matron-in-charge of this institution should be a fully trained nurse who is also qualified as a Sick Children's Nurse and has experience in infectious diseases and a practical knowledge of child psychology. Her assistants should possess the certificate issued by the National Society of Day Nurseries of Great Britain.

As in the case of the Infant Clinics, three nursery schools will be the minimum required in Gibraltar. It must be pointed out, however, that even at the risk of incurring more expense it is preferable to have the child population split up in small groups of, say, 25 than to herd them all together in a large nursery school. This would minimise the greatest disadvantage of the nursery school, viz. infection.

SCHOOL MEDICAL SERVICE.

It is hoped that schools built on modern lines will /

will be constructed by the Government and that due consideration will be given to the provision of open air playgrounds, proper heating and ventilation, lighting, lavatories, shower baths, etc.

A well balanced midday meal should be provided for boys and girls and a small charge made for it.

The hours of schooling should be so arranged that boys and girls are enabled to complete all their studies at school without the necessity of being given "home work." The majority of scholars would perform their "home work" more efficiently in school under the supervision of their teacher. Thus, a fair proportion would be saved the worry and anxiety of preparing lessons at home. This system has several disadvantages. The evening meal is hurriedly gulped down, bedtime is unduly late and sleep is probably disturbed by dreams and nightmares produced by an over-excited brain and a bad digestion.

The medical examination and supervision of boys and girls shall be on the lines recommended by the Ministry of Education.

With a small population such as we have in Gibraltar, the problem of special schools does not arise /

arise but provision should be made for a visiting teacher to attend in their homes the very few cases who through physical or mental defects are unable to attend at the ordinary schools and who would derive benefit from education.

CONCLUSION.

Taking into consideration the appalling living conditions of a large proportion of the population of Gibraltar it is surprising that the infant mortality rate is not higher. The fact that no efficient direct measures have ever been taken for reducing the infantile mortality leads one to anticipate that when all the suggestions proposed in this thesis are carried out, a marked lowering of this great loss of life will be achieved.

SUMMARY.

A general outline has been given of the topography, climatology, ethnology and administration of the City of Gibraltar. The living conditions of the people have been described.

A /

A short survey of the medical facilities obtainable up to the outbreak of War in 1939 has been made, including the various public health activities carried out by the City Council.

A table showing infantile mortality rates has been compiled from statistics derived from the Annual Reports on the Health of Gibraltar, published by the various Medical Officers of Health stationed at Gibraltar during the years 1921-39 and a comparison made with England and Wales.

A detailed statement showing the number and causes of death under 1 year, covering the period 1913-29 has been taken from a report made by W.C. Smales (1929)..

An analysis of the Infantile Mortality in Gibraltar has been undertaken and the vagueness and unsatisfactory certification of deaths commented on.

The writer has offered an explanation of the fluctuations in the mortality rates based on his knowledge of local conditions.

Plans /

Plans for a comprehensive paediatric service, both preventive and curative, under my direction as specialist paediatrician has been drawn up and discussed.

It has been pointed out that, considering the little that has been done in the past and the great deal that can be done in the future towards preventing disease in the infant population of Gibraltar, there are great possibilities of a marked reduction in the Infantile Morbidity and Mortality.

BIBLIOGRAPHY.

BIBLIOGRAPHY.

- JACOBY, N.M. (1944) Archives of Disease in Childhood, Vol. 19, p. 26.
- MANSELL, R.A. (1934) Annual Report, Medical Officer of Health, Gibraltar, p. 13.
- - (1939) Annual Report, Medical Officer of Health, Gibraltar, p. 25.
- MEDICAL RESEARCH COUNCIL WAR MEMORANDUM, No. 4 (1944)
The Control of Cross Infection in Hospitals.
- MILLER, F.J.W. (1942) Lancet, Sept. 5, p. 269.
- MINISTRY OF HEALTH AND DEPARTMENT OF HEALTH FOR SCOTLAND. (1944) Report on Inter-departmental Committee on Medical Schools. p.178, para. 15.
- PARKINSON, S.S. (1922) Annual Report, Medical Officer of Health, Gibraltar, p. 45.
- SMALES, W.C. (1924) Annual Report, Medical Officer of Health, Gibraltar, p. 15.
- - (1925) Annual Report, Medical Officer of Health, Gibraltar, p. 14.
- - (1926) Annual Report, Medical Officer, of Health, Gibraltar, p. 15.
- - (1929) Annual Report, Medical Officer of Health, Gibraltar, p. 20.